

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 06-11-2007		2. REPORT TYPE FINAL		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Disputed Boundaries: Assuring Access to the South China Sea				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) CDR Harvey L. Guffey, Jr. Paper Advisor (if Any): Dr. Chris Yeaw				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Joint Military Operations Department Naval War College 686 Cushing Road Newport, RI 02841-1207				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT For Example: Distribution Statement A: Approved for public release; Distribution is unlimited.					
13. SUPPLEMENTARY NOTES A paper submitted to the Naval War College faculty in partial satisfaction of the requirements of the Joint Military Operations Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.					
14. ABSTRACT Operations in the South China Sea present significant challenges with regard to each of the operational factors associated with joint military operations (time, space, and force). Several barriers exist that would deny access to joint forces and allies. Additionally, the <i>United Nations Convention for Law of the Sea</i> establishes baseline conventions for territorial boundaries and exclusion zones in the waters and airspace surrounding coastal nations. China, however, disagrees with the United States regarding the baselines established by <i>Law of the Sea</i> . As a result, several incidents involving PRC and U.S. aircraft and vessels have occurred outside recognized territorial waters/airspace. Options are available to joint forces to overcome anti-access challenges in the South China Sea across all phases of conflict (peace and wartime). U.S. Pacific Command and allied forces must understand the barriers to operations in the South China Sea and make use of all options available to guarantee access in support of the full Range of Military Operations (ROMO).					
15. SUBJECT TERMS Assured Access, Access Denial, South China Sea, submarines, SSN, SSGN, CV, MCM, TMD, FDNF, TSCP, UNCLOS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 17	19a. NAME OF RESPONSIBLE PERSON Chairman, JMO Dept
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code) 401-841-3556

**NAVAL WAR COLLEGE
Newport, R.I.**

DISPUTED BOUNDARIES: ASSURING ACCESS TO THE SOUTH CHINA SEA

by

Harvey L. Guffey, Jr.

Commander, United States Navy

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

06 November 2007

Abstract

Operations in the South China Sea present significant challenges with regard to each of the operational factors associated with joint military operations (time, space, and force). Several barriers exist that would deny access to joint forces and allies. Additionally, the *United Nations Convention for Law of the Sea* establishes baseline conventions for territorial boundaries and exclusion zones in the waters and airspace surrounding coastal nations. China, however, disagrees with the United States regarding the baselines established by *Law of the Sea*. As a result, several incidents involving PRC and U.S. aircraft and vessels have occurred outside recognized territorial waters/airspace. Options are available to joint forces to overcome anti-access challenges in the South China Sea across all phases of conflict (peace and wartime). U.S. Pacific Command and allied forces must understand the barriers to operations in the South China Sea and make use of all options available to guarantee access in support of the full Range of Military Operations (ROMO).

Table of Contents

Introduction	1
Background	2
Analysis/Recommendations	9
Discussion/Counterargument	16
Conclusion	17
Notes	19
Bibliography	21

List of Illustrations

Figure	Title	Page
1.	East and South China Seas, including the First and Second Island Chains	3

INTRODUCTION

The ultimate strategic effect of the Iraq war has been to hasten the arrival of the Asian century... The military trend that is hiding in plain sight is the loss of the Pacific Ocean as an American lake after 60 years of near-total dominance.... In addition to submarines, Beijing has focused on naval mines, ballistic missiles that can hit moving objects at sea, and technology that blocks G.P.S. [Global Positioning System] satellites. The goal is ‘sea denial.’

-- Robert Kaplan

Anti-access (or sea denial) strategies include any and all “actions that would impede the deployment of U.S. forces into the combat theater, limit the locations from which those forces could effectively operate, or force them to operate from locations farther from the locus of conflict than they would normally prefer.”¹ The methods or means available to prevent access include:

a range of political, military, and other actions to coerce the United States and its partners and allies or to place at risk deploying forces, their bases, and needed infrastructure. Such means include threatened or actual use of weapons of mass destruction (WMD), cruise and ballistic missiles, attack submarines, sea mines, special operations and conventional terrorism, information warfare (IW), and other techniques, each of which offers the prospects of growing both in terms of sophistication and availability.²

As recently discussed by Admiral Natter, former Commander of Fleet Forces Command, “assured access is a linchpin of both our naval and national security strategies. Although our most recent strike-intensive wars have been conducted virtually free from challenge at sea, this superiority is far from guaranteed against more capable adversaries.” He further indicates that “it is clear that mines and submarines—especially in significant numbers—have the greatest potential to impede our access from the sea.”³

Although a term for “anti-access” is not explicitly seen in Chinese writings,⁴ in recent years the Chinese have devoted extensive funding and efforts to the procurement of “attack submarines, advanced sea mines, TBMs [Theater Ballistic Missiles], cruise missiles, and

SAMs [Surface to Air Missiles],” and have been increasingly recognized for their developing access denial capabilities.⁵ These capabilities significantly threaten the ability for joint U.S. and allied forces to execute the Range of Military Operations (ROMO) across all phases of conflict (peace through war). Several options, however, are available for U.S. Pacific Command (USPACOM), the Combatant Commander for the Western Pacific, to assure access to the China Seas for USPACOM and allied forces.

This paper will analyze issues associated with China’s ability to deny access to the China Seas and options available to USPACOM to limit the effectiveness or eliminate Chinese access denial efforts and support the full ROMO for joint U.S. and allied forces. Although a similar analysis could be performed for the Yellow and East China Seas, this study will be limited to the South China Sea (SCS).

BACKGROUND

To fully develop options available to assure access, the strategic significance of access to the SCS will be discussed. Next, barriers to USPACOM access will be provided. Perceived U.S. vulnerabilities, as viewed by China, will also be included in the discussion.

The strategic significance of the SCS lies primarily in its physical location. As shown in figure 1, the SCS is bounded by the Ryukyu and Philippine Islands, Malaysia, Indonesia and Vietnam (depicted as the “First Island Chain” south of Taiwan).⁶ The SCS is the largest, deepest and most highly trafficked of the China Seas, of vital importance both commercially (merchant shipping) and militarily:

More than 41,000 ships a year pass through the [SCS], more than double the number that pass through the Suez Canal, and nearly triple the total for the Panama Canal. More than half the world’s annual merchant-fleet tonnage passes through the straits of Malacca [SOM], Sunda, and Lombok. For the United States, the Malacca Strait is critical to the mobility and flexibility of its Seventh Fleet.⁷

Additionally, China, Japan and Taiwan all rely on the SOM for the majority (over 70 per cent) of their oil imports. As a result, “in times of crisis, whoever controls these sea lanes gains an immediate strategic advantage.”⁸



Figure 1: East and South China Seas, including the First and Second Island Chains.⁹

Barriers to access to the SCS can be viewed in terms of affects on operational factors space, time, and force. “Factor space” and “factor time” concerns result largely from the long distance between major U.S. Pacific fleet homeports (Pearl Harbor and San Diego) and the SCS, and from the large size of the SCS itself. Although also affected by the distance and size, “factor force” concerns include several additional issues as well.

Additional barriers influencing “factor force” include Peoples’ Liberation Army Navy (PLAN) military forces and technologies recently developed to address specific perceived

U.S. vulnerabilities. A review of the perceived vulnerabilities will be followed by a discussion of the specific military and technological threats to access.

A specific vulnerability perceived by the Chinese involves U.S. Command, Control, Communications, and Computer Intelligence, Surveillance and Reconnaissance (C4ISR) systems. As “Chinese strategists believe that the U.S. military’s awesome power derives in large degree from its effective integration and use of information technology,” the Chinese indicate that “effectively attacking that system will affect U.S. combat capabilities much more profoundly than would directly targeting other platforms.”¹⁰ Potential threats to U.S. force C4ISR systems include combinations of “soft- and hard-kill methods” of attack, with current Chinese efforts geared toward “concentrated, complete, and focused ... electromagnetic suppression, powerful electronic warfare attack, and computer network countermeasures to carry out concentrated interference, suppression, and destruction attacks,” even including nuclear or non-nuclear electromagnetic pulse (EMP) attacks.¹¹

Additional perceived vulnerabilities include logistics and supply nodes (largely due to distance and size constraints) and challenges associated with fighting multiple high technology wars simultaneously (with the Chinese specifically citing ongoing wars in Iraq and Afghanistan). Also, the Chinese note a “heavy reliance” by U.S. forces “on assistance from allies, including everything from political and financial support to basing and overflight rights.” The Chinese perceive that the “United States cannot successfully carry out major military operations without significant assistance from its allies and cooperation from other countries.”¹² As such, Chinese writings propose the employment of “ballistic missiles, cruise missiles, aircraft, SOF [Special Operations Forces], saboteurs, and computer network attack ... to degrade an adversary’s transportation, logistics, and support capabilities.”¹³

Finally, the Chinese perceive that U.S. forces are highly vulnerable to blockade, highlighting their necessity for submarines, aircraft and mines. Additionally, China discusses the potential use of “‘the broad masses of people,’ a possible reference to use of civilian vessels ... to assist blockade operations.”¹⁴ An effective blockade of the SOM or Taiwan Strait would significantly impact mobility of joint forces and commercial traffic.

The Chinese clearly see the U.S. submarine force as a critical strength for U.S. joint forces, noting that “U.S. nuclear submarines [SSN] are very quiet, and difficult to discover and counterattack; at the same time, their attack power is great, and must be restrained.”¹⁵ As such, and noting that “since the beginning of the twentieth century, submarines have been the weapon of choice for weaker naval powers that wish to contest a dominant power’s control of the seas or its ability to project power ashore from the sea,”¹⁶ the PLAN has undergone a long-term effort to build a formidable submarine force. Efforts have included both procurement (from Russia) and indigenous construction of diesel-electric and nuclear submarines, and have resulted in a submarine fleet that is now third largest in the world.

Peter Howarth, a well-known China analyst, indicates that the main purpose for China’s tactical submarine fleet is denial of access to the Chinese coast:

The Chinese submarine fleet, spearheaded by the KILO- and SONG-class [diesel-electric] boats, provides Beijing with its most effective sea-denial instrument, well suited to preventing the [U.S.] Navy from approaching the Chinese littoral, or at least depriving it of its freedom of action in the zone which extends at least up to 200 nautical miles from the Chinese coast. In any crisis or conflict involving the United States and its allies, the PLA Navy’s submarine fleet would play a leading role in an anti-access strategy designed to keep United States naval forces away from the Chinese coast.¹⁷

He further indicates that “if the PRC’s [People’s Republic of China] large and increasingly capable tactical submarine fleet does not yet have the ability to prevent the U.S. Navy from using the seas surrounding Taiwan with impunity, it is rapidly acquiring that ability.”¹⁸

In addition to the PLAN submarine challenges, mines, described by ADM Natter as “indiscriminate and anonymous,” represent a significant threat to U.S. forces. “Discreetly deployed from submarines, aircraft, small boats, and other platforms, mines are an inexpensive force multiplier that can shock, damage, and deter U.S. forces, threatening access to the choke points, ports, and coastal regions needed to project U.S. power from the sea.”¹⁹ Based on translations of Chinese military writings, members of the U.S. Navy War College’s (NWC) China Maritime Studies Institute (CMSI) concur with ADM Natter’s assessment, noting that “the major mission of self-guided sea mines is to isolate American nuclear submarines outside the First Island Chain.”²⁰ Additionally, Howarth discusses a strategy based on the teachings of Sun Zi and the traditions of China that “relies on a combination of deception and asymmetric stratagems to enable the weaker Chinese naval forces to defeat the stronger U.S. forces.”²¹ Asymmetric use of mines as discussed above would clearly fit this strategic pattern.

The Chinese have also identified naval aviation and the aircraft carrier (CV) as critical strengths for U.S. forces. In fact, references indicate that “the importance of naval aviation to U.S. operations is of great concern to the PLA,” and that “Chinese sources describe the disproportionate role aircraft carriers sometimes play in conflict but also make clear their belief that aircraft carriers can be defeated.” Specific stated options available to the PLAN to defeat CV defenses include “massed attacks using air- and sea-launched cruise missiles,” with submarine-launched torpedoes available for mission-kills. “Ballistic missiles are also discussed as possible anti-carrier weapons.”²²

Not all new Chinese technologies and platforms are developed for Naval forces. Additional access denial investments include significant expenditures in space and

information warfare development. Specific developments include “a network of satellites that can be used to guide navigation by its own ships at sea, as well as to keep track of other countries’ vessels,”²³ and recent testing of an anti-satellite weapon. Additionally, according to Lieutenant General Leaf, Deputy Commander of USPACOM, “Pentagon officials have said Chinese military hackers in recent months carried out computer-based attacks on Pentagon and U.S. military and civilian government computer networks.” As assessed by GEN Leaf, these efforts “‘would not be consistent’ with Beijing’s claim to be a peaceful rising power.”²⁴

Finally, references indicate a significant Chinese technological investment in “polar research” to develop and test satellites that “permit surveillance of areas on and below the ocean surface that are inaccessible to ships, buoys, and other types of satellites,” with stated PRC “plans to create its own maritime observation system by 2010.” Studies are reportedly aimed “at enhancing visibility at greater ocean depths and augmenting the precision and completeness of oceanic [GPS and related] satellite data.” As “anomalous submersibles may be indentified by comparing the differences between the ‘observed’ and ‘baselined’ values,”²⁵ these developments could clearly be used to further PRC access denial efforts.

In addition to development of additional platforms and new technologies, analysts indicate a strategic movement of PLAN ships and submarines to the SCS. “China is deploying more of its nuclear and conventional naval forces into the [SCS], probably to a new base on Hainan. The shift will cause ripples in the region, with access to and control over disputed reefs and crucial sea-lanes considered vital strategic motivations.”²⁶ The reference further notes that the Yulin base on Hainan “provides almost immediate access to deep water patrolling areas and therefore offers greater security from” “current and possible future U.S.

anti-submarine warfare [ASW] forces.” Additionally, the “increase in Chinese naval platforms in the [SCS] is contentious, not only owing to the obvious growth in Chinese naval capabilities, but also the strategic importance of sea lanes in the region critical to all Asian economies”²⁷ as discussed above.

Although not technologically- or force-driven, one additional issue involving stated interpretation of the United Nations Law of the Sea Convention (UNCLOS) in the SCS impacts factors space and force for U.S. forces. Specifically, the UNCLOS provisions “relating to the principle of freedom of navigation are interpreted variously by different countries.”²⁸ China “is adjacent or opposite to eight neighboring countries surrounding the Yellow Sea, East China Sea and the [SCS],” and “overlapping claims over the EEZ [exclusive economic zones] and continental shelf between China and these eight countries have emerged.”²⁹ As a result, “many navies ... are maneuvering in the EEZs of the [SCS], where multiplying and overlapping jurisdictional claims confuse the rules of passage.”³⁰

Of specific pertinence to this discussion, the United States and China hold differing opinions regarding the laws for transits between the 12 nautical mile (nm) territorial limit and the 200 nm boundary for Chinese [EEZ].³¹ Based on the fact that “the international respect for freedom of the seas guarantees legal access up to the territorial waters of all coastal countries of the world,” the United States “equate[s] the EEZ with high seas in freedom of navigation.” As such, “the freedoms of the high seas comprise the freedom of navigation and overflight,” as well as freedom to lay submarine cables/pipelines, construct artificial islands, fish, and conduct research.³² China, however, attempts to enforce a provision that states that “coastal states have a firm basis for opposing any non-peaceful use of their EEZs,” citing that military operations [(such as spy flights)] are not peaceful.”³³

This disagreement on U.S. operating rights within China's EEZ has led to conflict on numerous occasions, including:

In October 1994 a Type 091 SSN came close to the carrier USS Independence when it entered the Yellow Sea. When the carrier sent S-3 Viking ASW aircraft to shadow the SSN, PLA Navy fighters were sent to shadow the U.S. aircraft. And in 2001 and 2002, PLA Navy forces harassed the survey ship USS Bowditch as it surveyed areas in the Yellow Sea. On April 1, 2001, a PLA Navy Shenyang J-8II fighter collided with a U.S. Navy EP-3 electronic intelligence aircraft, killing the Chinese pilot, but leading to Chinese exploitation of the EP-3 which made an emergency landing on Hainan.³⁴

Of note, however, the same reference indicates that the Chinese "selectively" apply their stated EEZ concerns, noting that "from October to early November 2004, U.S. and Japanese naval forces monitored the voyage of a Type 091 SSN, which circumvented Guam, before making a brief but high-profile incursion into Japanese territorial waters."³⁵

Even more recently, "a Chinese Navy fleet led by guided-missile destroyers steamed through Taiwanese and Japanese waters on two occasions in April and May [2007]," according to Taiwan Defense Minister Lee Tien-yu. "Some five vessels, mostly Luh-class missile destroyers and distilling ships ... passed between Okinawa and Miyakojima islands before ... traveling along Taiwan's east coast and passing its southern tip on two occasions." The reference further indicated that "a Chinese Song-class diesel submarine had also slipped in and out of Japanese waters near where the fleet had operated during one of its trips."³⁶

ANALYSIS/RECOMMENDATIONS

It appears that China's short-term objectives for naval modernization correlate to China's goal of acquiring the ability to frustrate potential adversaries such as the U.S. Navy and deny the ability of its adversaries to operate in areas vital to China's interests such as the Taiwan Strait. Currently, China is hindered in achieving this goal by the lack of a strong, reliable fleet. The PLA Navy includes fewer than twenty ships possessing limited anti-air warfare defense systems and believed "capable of operating" in an early 21st-century naval environment.

-- 2006 Report to Congress

Additionally, China generally “considers its ASW forces to be weak,” citing a lack of towed array sonar systems (“which have significantly increased ASW capabilities for U.S. and other more advanced submarine fleets”) and a “particular weakness” in aerial ASW due to a lack of adequate rotary aircraft and maritime patrol aircraft (MPA).³⁷

Any strategy to assure access to the SCS must address each of the barriers discussed in the previous section, and near-term options should take advantage of the PLAN’s perceived weakness identified above. Focus areas for USPACOM should include Undersea Warfare (USW), Air Warfare (AW), Mine-Countermeasures (MCM), Theater Missile Defense (TMD), and theater security cooperation. Additionally, options to improve the security and effectiveness of forward deployed forces will be discussed.

USW (or ASW). Based on competing resources, U.S. USW assets were allowed to decline following the end of the Cold War. Specifically, “over the last decade the U.S. had decided to mothball its Spruance class destroyers, perhaps one of the best ASW ships ever built. The Navy also ended the ASW mission of the S-3 Viking in 1998 and will not even replace this platform when it is withdrawn from service [in about 2007]. Perhaps more alarming are budget driven pressures to reduce the overall numbers of the U.S. SSN fleet.”³⁸ “Partially in response to the PLA Navy submarine build-up,” however, the U.S. Navy has recently “revived its interest in ASW.”³⁹

A key component in the U.S. USW strategy is the submarine force, comprised of SSNs and newly converted guided missile submarines (SSGN). In addition to USW, SSNs and SSGNs perform extended ISR, SOF, and land-attack strike missions in support of joint access:

‘Submarines are an important part of the maritime strategy, Adm. Jonathan Greenert, commander Fleet Forces Command,’ recently told attendees at the

25th Naval Submarine League expo in McLean, Va.... Greenert note[d] that submarines remain the best, and right now, the only anti-access platform. ‘If you go out and look at a major command operation and say what are the COCOMs [Combatant Commander’s] shortfalls, what are the capabilities we are looking for in the future, it’s access...it’s capacity of our SOF, and capacity for strike and to have a mobile command and control platform. All of those are right there in the SSGN. We’ve got a great great contribution from the sub community.’⁴⁰

Additional critical USW assets include carrier-based helicopters and land-based MPA, which will be discussed later. USPACOM must properly maintain each of these critical systems, and conduct coordinated U.S./allied USW exercises to maintain the ability to perform this vital mission area. Conducting exercises within the SCS, when possible, will enhance knowledge of the operating environment in support of intelligence preparation of the battlespace, but concerns with UNCLOS disagreements must be considered.

AW. “Whether operating in peacetime or surging in wartime, the carrier strike group’s [CSG] core capability is its ability to project combat power ashore with its strike-fighter aircraft while providing a shield for the sea base.” Further, “when facing an adversary that has significant anti-access capabilities such as an advanced integrated air defense system, coastal defense cruise or ballistic missiles, or a credible submarine threat, the strike group’s ability to project power depends upon four capabilities,” each of which are enabled by “the catapults and arresting gear on a large-deck carrier.” Critical capabilities include Airborne Early Warning (AEW), Airborne Electronic Attack (AEA), Anti-Surface Warfare (ASUW), and ASW.⁴¹ In addition to carrier-based fighter jets, the MH-60R/S multi-mission helicopter provides robust ASW, ASUW, and MCM capabilities. Two squadrons of MH-60R/S helicopters are reportedly deployed per CSG.⁴² The continued presence of at least one CSG in the western Pacific, if exercised as discussed above, will significantly enhance USW efforts to assure access to the SCS.

MCM. Not unlike the declines in USW mentioned above, MCM capabilities were allowed to atrophy over recent decades. As discussed by ADM Natter, however, “mine warfare must be a core competency of the fleet.” As such, the U.S. Navy has invested significant resources into developing and testing several airborne, surface-ship, and submarine-based organic mine warfare systems for introduction in recent and coming years.⁴³ USPACOM must train and exercise each of these systems as they come on line.

TMD. USPACOM must continue to deploy a “sea-based component” using a system such as the Aegis air defense system, which has been deemed “critical to the success of the [TMD] system.” Benefits include the ability to “avoid being misled by decoys by destroying an enemy missile in its boost phase, shortly after lift-off.” To destroy missiles in the boost phase, however, the launch platform has to be “rather close to the launch site—within a few hundred miles. The [SCS] is one possible place for deploying such a sea-based component.” Deployment of Aegis platforms in the SCS, however, will likely continue to draw resistance from the Chinese.⁴⁴

Forward Deployed Forces. For years the United States has benefited from the deployment of “strong forces in the Western Pacific,” maintaining a “system of military bases” on and around the First and Second Island Chains.” Forces are currently located in Japan, South Korea, Australia, the Philippines and Guam.⁴⁵ Additionally, and as discussed by GEN Leaf, USPACOM has recently initiated a significant “restructuring that includes more ships, submarines and bombers at bases at Guam and Hawaii; larger military exercises; and closer alliances” designed to “produce more powerful and flexible military forces.”⁴⁶ USPACOM must continue to integrate each of these forces in training and exercises where possible, and should continue to evaluate options to enhance force effectiveness.

Additionally, the United States is reportedly upgrading facilities at Diego Garcia, a small British island group in the Indian Ocean, to support SSGN forward-deployed maintenance and crew exchange. Operations from Diego Garcia significantly reduce transit time to the SCS and other potential crisis areas in support of USPACOM objectives.⁴⁷

One vulnerability of these forward bases, as highlighted in one reference reviewed, results from the fact that “the freedom to operate from such bases during armed conflicts may be limited according to the interests and vulnerabilities of the host nation.”⁴⁸ USPACOM must be alert to any issues potentially resulting in the temporary or permanent loss of forward basing, and be prepared to deploy forces to other shore- or sea-based facilities to support seamless operations. Options for sea-basing include assets of the CSG and/or deployed SSGNs.

Another issue associated with forward basing, specifically Guam in this case, is that it creates a significant force protection vulnerability. For example, the Chinese note that:

The U.S. military has still not established a defense system of anti-aircraft, anti-missile, and other defense systems on Guam—[there exists] only a pittance of coastal patrol forces. Once there are hostilities, Guam’s defense can only rely on the U.S. Navy’s sea-based missile defense system and Air Force joint operations. Consequently, in wartime, Guam’s defense is still a problem; also, because it is in a special position surrounded on four sides by ocean at the intersection of three major international sea lanes, it is impossible to defend effectively. If the other side’s long-range ballistic missiles, submarine-launched cruise missiles, long-range bombers or maritime special forces operations units, etc., can break through Guam’s peripheral warning and defense, [to] destroy or seriously damage its naval port, airfield, munitions warehouse, and communications system, [then] the entire operational system of America in the Pacific Theater can become ineffective, its sustained warfare capability can greatly fall short of requirements [and] its resolution and dynamics of military intervention would have to change.⁴⁹

USPACOM must be aware of and take prompt and effective actions to shore up any vulnerabilities within defense systems surrounding Guam. Additionally, the defenses at other forward bases should be inspected (and strengthened if required).

Future Programs. Other options to improve USPACOM access to the SCS include the new Boeing-737 Multimission Maritime Aircraft (MMA), coming online in the very near future to replace aging P-3C ASW aircraft, and a long-range U.S. Air Force strike bomber that is projected to be available around 2018.⁵⁰ Additional programs under consideration include Unmanned Aerial Vehicles (UAV) “with data links to ships and aircraft,” and unmanned underwater combat vehicles that could “be stationed on the seabed near PLA SSBN [ballistic missile submarine] bases for years, to be activated during times of tension.” Development of “space-based surveillance systems able to penetrate shallow waters around PLA nuclear sub bases,” similar to those discussed for China above, is also under consideration.⁵¹ USPACOM must be involved in any feasibility studies, testing or experimentation for these programs. Additionally, an assessment of electronic hardening for all U.S. forces should be conducted, and vulnerabilities should be shored up as necessary.

Security Cooperation. Several recent press articles have discussed efforts to improve relations with China from the USPACOM level up through that of the Secretary of Defense. Despite numerous recent high level visits, both here in the United States and in China, U.S. leaders seem dissatisfied with the progress of cooperation efforts. Specifically, the recently relieving Commander of USPACOM, Adm. Keating, recently voiced the need “to get a better understanding of Beijing’s motives and military capabilities,” and a desire for “more access to Chinese forces and more exchanges and expanded joint exercises by the two navies.”⁵² GEN Leaf, similarly, said that “the Pentagon’s military-exchange program with China ‘has

not been everything we hoped. But we still have found significant value from it in the simple regard of building some relationships that will reduce the potential misunderstanding.”⁵³

Efforts for improved communications and understanding have not been solely between the United States and China. A recent visit to Japan by Chinese General Cao Gangchuan “was the first by a Chinese defense minister since 1998, before relations between Tokyo and Beijing turned icy.” As a result of the meeting, Japan and China reportedly agreed “to work to ease military tensions through a crisis hotline and ship exchanges.” Additionally, General Cao reportedly invited Japan “to observe a Chinese military exercise ... and agreed on exchange visits of vessels, scheduling a Chinese ship to visit Japan in November or December.”⁵⁴

Defense Secretary Gates is currently visiting China in an attempt to “help soothe relations strained by suspicions over China’s massive military buildup.” According to Chinese foreign ministry spokesman Liu Jianchao, China reportedly “attache[d] a high level of importance to the visit and believe[d] the visit [would] promote mutual understanding as well as a healthy and stable development between the two militaries.” Secretary Gates has reportedly “urged China to be more transparent about its military modernization while stressing the need for greater engagement between the U.S. and Chinese militaries.”⁵⁵

Continued Sino-U.S. and regional cooperation efforts should be fostered to the maximum extent. A specific issue that USPACOM should attempt to resolve with China is the differing interpretation of the UNCLOS as it pertains to the SCS. Optimally, “a multilateral confidence-building arrangement focused on the practical issues of navigation (as opposed to the territorial issues)” would be developed. Based on reports:

First steps in this direction were taken in January 1998, when China and the United States entered into a Military Maritime Consultative Agreement

(MMCA) designed to establish a consultation mechanism comprising annual meetings, working groups, and special meetings to strengthen military maritime safety and prevent accidents at sea. Though a meeting was held in July 1998, the agreement was shelved by the Bush administration. But the MMCA could serve as the first step in confidence-building measures; eventually, it could be a model for a regional agreement.⁵⁶

Pending complete resolution of the disagreement, an agreement similar to the 1972 “Incidents at Sea” (INCSEA) agreement between the United States and the Soviet Union should be requested, with goals of “prevent[ing] collisions at sea and in the air;... minimiz[ing] the chance of accidents resulting from normal activities; and ... develop[ing] more predictable standard operating procedures at sea for promoting mutually beneficial regional cooperation in naval operations.”⁵⁷

DISCUSSION/COUNTERARGUMENT

Some would argue that assured access in the SCS is not attainable. Some might complain, for example, that U.S. forces have allowed USW capabilities to atrophy to the point that U.S. assets would be unable to detect and track Chinese submarines. Evidence is available, however, to refute this argument, at least for the short term.

As recorded in Chinese military writings and translated by CMSI, “the submarine force constitutes one of the most vital elements of Washington’s overall strategy for establishing and maintaining sea control in times of conflict.” Further translated, the submarine force executes missions of “strategic deterrence, [ISR], extended-range land attack, and insertion of [SOF], in addition to forming the essential backbone of the Navy’s mission of sea control—the all-important, enabling task of maintaining command of the seas for the U.S. armed forces.”⁵⁸

A second article discusses the increased operational availability afforded by SSGN, and SSGN’s role as an enabler for other naval forces:

After being refitted, SSGNs will be deployed 65% the time each year on average.... As such, the USN will always have at least 2 SSGNs ready for battle at any time, and in wartime, 1 SSGN can take over the duties of many attack submarines and surface ships. Once the SSGN goes into service, this will significantly reduce the land attack burden shouldered by the surface fleet and allow it to focus on providing air defense against missile threats. At the same time, the SSGN will reduce the land attack role of SSNs, enabling them to concentrate on anti-surface and ASW [antisubmarine warfare] missions.⁵⁹

A third article indicates that SSNs are “the most worthwhile weapons investments because they are the most survivable weapons platforms. . . . During a regional conflict, [U.S.] nuclear attack submarines are the first in and last out.” Further, the Chinese writer states that “U.S. nuclear submarines are very quiet, and difficult to discover and counterattack; at the same time, [their] attack power is great, [and] must [be] restrain[ed].”⁶⁰

A final article addressing the effectiveness of the U.S. submarine force’s heavyweight torpedo indicates that “the [Mark 48] torpedo’s outstanding effectiveness in all combat circumstances has been proven and it can be used to attack surface ships, nuclear submarines, and also diesel electric submarines.”⁶¹

Although these admissions by the Chinese military do not guarantee access, they certainly represent Chinese admission of U.S. superiority in the USW mission, which is absolutely critical to assuring access to the SCS.

CONCLUSION

There are many challenges to our ability to exercise sea control, perhaps none as significant as the growing number of nations operating submarines, both advanced diesel-electric and nuclear propelled. . . . We will not permit conditions under which our maritime forces would be impeded from freedom of maneuver and freedom of access, nor will we permit an adversary to disrupt the global supply chain by attempting to block vital sea-lines of communication and commerce. We will be able to impose local control wherever necessary, ideally in concert with friends and allies, but by ourselves if we must.

- National Maritime Strategy, October 2007

Several barriers exist that have the potential to influence the balance of operational factors space, time and force for U.S. forces, with a corresponding threat of delaying or denying access to the SCS. A review of these barriers, in light of potential U.S. vulnerabilities, indicates that although several core capabilities (USW, MCM, etc.) were allowed to atrophy after the Cold War, U.S. force capabilities still exceed those of the Chinese such that access cannot be denied. Based on recent and projected improvements in PLAN technologies, equipment, and training, however, this access cannot be guaranteed in the future without a sizeable investment of USPACOM resources, training, and exercises.

Specific recommendations for options to enhance future U.S. abilities to gain and maintain access to the SCS include investments in USW, MCM, missile defense, forward basing, and theater security cooperation. Additionally, recommendations to minimize the potential of future incidents involving differing interpretations of the UNCLOS are provided.

“Beijing wants to turn the Taiwan Strait into its ‘inland lake,’ where it will have the power to exercise total control if and when needed. With the development and deployment of its nuclear submarine arm in the next few years, it hopes to exercise that power against any U.S. intervention.”⁶² With proper monitoring, analysis and action by USPACOM and allied forces, however, a peaceful rise of China and accompanying regional stability can be ensured.

NOTES

(All notes appear in shortened form. For full details, see the appropriate entry in the Bibliography.)

¹ Cliff, et.al., *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States*, iii.

² Larson, et.al., *Assuring Access in Key Strategic Regions: Toward a Long-Term Strategy*, 3.

³ Natter, "Access is Not Assured."

⁴ Cliff, et.al., *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States*, 17.

⁵ Larson, et.al., *Assuring Access in Key Strategic Regions: Toward a Long-Term Strategy*, 44.

⁶ Howarth, *China's Rising Sea Power: The PLA Navy's Submarine Challenge*, 92-94.

⁷ Guoxing, "Rough Waters in the South China Sea: Navigation Issues and Confidence-Building Measures."

⁸ "China's New Sub Base to Make Waves."

⁹ U.S. Department of Defense, *Military Power of the People's Republic of China 2006*, 15.

¹⁰ Cliff, et.al., *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States*, 45.

¹¹ *Ibid.*, 51-56.

¹² *Ibid.*, 46-49.

¹³ *Ibid.*, 61.

¹⁴ *Ibid.*, 64-66.

¹⁵ Collins, et. al., "Chinese Views of the USN Submarine Force."

¹⁶ Cote, *The Third Battle: Innovation in the U.S. Navy's Silent Cold War Struggle with Soviet Submarines*, 1.

¹⁷ Howarth, *China's Rising Sea Power: The PLA Navy's Submarine Challenge*, 97.

¹⁸ *Ibid.*, 168.

¹⁹ Natter, "Access is Not Assured."

²⁰ Collins, et.al., "Chinese Views of the USN Submarine Force."

²¹ Howarth, *China's Rising Sea Power: The PLA Navy's Submarine Challenge*, 138.

²² Cliff, et.al., *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States*, xvii.

²³ Fairclough, "As China Grows, So Does Its Long-Neglected Navy: Warship-Buying Spree Prompts New Worry in Washington, Tokyo."

²⁴ Gertz, "Chinese Military Boosts Hacking: U.S. Advantage in Space is Key."

²⁵ "OSC Analysis: China-Expanding Polar Activities Boost Oceanic Satellite Development."

²⁶ "China's New Sub Base to Make Waves."

²⁷ "China's New Sub Base to Make Waves."

²⁸ Guoxing, "Rough Waters in the South China Sea: Navigation Issues and Confidence-Building Measures."

²⁹ Nordquist, Moore and Fu, ed., *Recent Developments in the Law of the Sea and China*, 25. The eight countries noted include the Democratic People's Republic of Korea, the Republic of Korea, Japan, Vietnam, the Philippines, Malaysia, Brunei and Indonesia.

³⁰ Guoxing, "Rough Waters in the South China Sea: Navigation Issues and Confidence-Building Measures."

³¹ *Ibid.*

³² *Ibid.*

³³ *Ibid.*

³⁴ Fisher, "Developing U.S.-Chinese Nuclear Naval Competition in Asia."

³⁵ *Ibid.*

³⁶ "China Navy Intruding: Taiwan Report."

³⁷ Collins, et.al., "Chinese Views of the USN Submarine Force."

³⁸ Fisher, "Developing U.S.-Chinese Nuclear Naval Competition in Asia."

³⁹ *Ibid.*

⁴⁰ "Below the Sea."

⁴¹ Massenber, Zortman, and Kilcline, "Naval Aviation: Forward, Persistent and Dominant."

⁴² Ibid.

⁴³ Natter, "Access is Not Assured." Programmed MCM systems include Long-term Mine Reconnaissance System (LMRS), Remote Mine-hunting System (RMS), Airborne Mine Neutralization System (AMNS), Organic Airborne and Surface Influence Sweep (OASIS), Airborne Laser Mine Detection System (ALMDS) and Rapid Airborne Mine clearance System (RAMICS). According to the reference, Unmanned Surface Vehicles have also been successfully tested in mine-sweeping operations.

⁴⁴ Guoxing, "Rough Waters in the South China Sea: Navigation Issues and Confidence-Building Measures."

⁴⁵ Erickson, and Goldstein, "Maritime Geostrategy and the Development of the Chinese Navy in the Early Twenty-First Century."

⁴⁶ Gertz, "Chinese Military Boosts Hacking: U.S. Advantage in Space is Key."

⁴⁷ Page, "US Navy Builds Stingray-esque Base in Indian Ocean."

⁴⁸ Massenberg, Zortman, and Kilcline, "Naval Aviation: Forward, Persistent and Dominant."

⁴⁹ Collins, et. al., "Chinese Views of the USN Submarine Force."

⁵⁰ Gertz, "Chinese Military Boosts Hacking: U.S. Advantage in Space is Key."

⁵¹ Fisher, "Developing U.S.-Chinese Nuclear Naval Competition in Asia."

⁵² Fairclough, "As China Grows, So Does Its Long-Neglected Navy: Warship-Buying Spree Prompts New Worry in Washington, Tokyo."

⁵³ Gertz, "Chinese Military Boosts Hacking: U.S. Advantage in Space is Key."

⁵⁴ "Japan, China Agree to Ease Military Tensions."

⁵⁵ "China Says Gates Visit Could Soothe U.S. Ties."

⁵⁶ Guoxing, "Rough Waters in the South China Sea: Navigation Issues and Confidence-Building Measures."

⁵⁷ Ibid.

⁵⁸ Collins, et. al., "Chinese Views of the USN Submarine Force."

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² Seth, "China Filling Up Military Power Gap Left by U.S."

Bibliography

- Alwi, Brigadier General Dato Mohammad Ali Bin, Malaysian Army. *The Conflicting Claims in the South China Sea*. Carlisle, PA: U.S. Army War College, 1991.
- “Below the Sea.” *Defense Daily*, 5 November 2007. www.defensedaily.com (accessed 5 November 2007).
- Chang, Andrei. “Analysis: China’s Navy Developing Carriers and Submarines.” *UPI Asia Online*, 17 August 2007.
www.upiasiaonline.com/security/2007/08/17/analysis_chinas_navy_developing_carriers_and_submarines/ (accessed 17 August 2007).
- “China Navy Intruding: Taiwan Report.” *Japan Times*, 31 August 2007.
<http://search.japantimes.co.jp/cgi-bin/nn20070831b4.html> (accessed 31 August 2007).
- “China’s New Sub Base to Make Waves.” *Janes Defense Online*, 2 March 2006.
www.janes.com (accessed 10 September 2007).
- “China’s Nuclear Submarine and Its Defense Penetration Capability.” *Open Source CPP20050324000211*, 1 March 2005. www.opensource.gov (accessed 30 January 2007).
- “China Says Gates Visit Could Soothe U.S. Ties.” *Yahoo.com*, 1 November 2007.
www.yahoo.com (accessed 1 November 2007).
- “China to Test Space Weapon in Launching Moon Satellite.” Associated Press Hong Kong, 23 October 2007. www.breitbart.com (accessed 23 October 2007).
- Cliff, Roger, et. al. *Entering the Dragon’s Lair: Chinese Antiaccess Strategies and Their Implications for the United States*. Santa Monica, CA: Rand Corporation, 2007.
- Cole, Bernard D. *The Great Wall at Sea: China’s Navy Enters the Twenty-First Century*. Annapolis, MD: Naval Institute Press, 2001.
- Collins, Gabriel, et. al. “Chinese Views of the USN Submarine Force.” *Naval War College Review*, Vol 61, No. 1 (Winter 2008). Annapolis, MD: Naval Institute Press.
Reviewed in pre-print draft form (Pelham Boyer, email to author, 2 November 2007 – pelham.boyer@nwc.navy.mil).
- Conway, James T., Gary Roughead and Thad W. Allen. “A Cooperative Strategy for 21st Century Seapower,” October 2007. www.navy.mil/maritime/MaritimeStrategy.pdf (accessed 4 November 2007).
- Cote, Owen R. *The Third Battle. Innovation in the U.S. Navy’s Silent Cold War Struggle with Soviet Submarines*. Newport, RI: Naval War College Press, 2003.
- “East China Sea.” National Oceanic and Atmospheric Administration.
<http://www.pmel.noaa.gov/np/pages/seas/ecs.html> (accessed 11 May 2007).
- Erickson, Andrew S., et. al. *China’s Future Nuclear Submarine Force*. Annapolis, MD: Naval Institute Press, 2007.

- Erickson, Andrew S. and Lyle J. Goldstein. "China's Future Nuclear Submarine Force." *Naval War College Review*, Vol. 60, No. 1 (Winter 2007). Annapolis, MD: Naval War College Press.
- Erickson, Andrew S. and Lyle J. Goldstein, eds. "Maritime Geostrategy and the Development of the Chinese Navy in the Early Twenty-First Century." *Naval War College Review*, Vol. 59, No. 4 (Autumn 2006). Annapolis, MD: Naval Institute Press. <http://www.nwc.navy.mil/press/Review/2006/autumn/art2-a06.htm> (accessed 2 April 2007).
- Fairclough, Gordon. "As China Grows, So Does Its Long-Neglected Navy: Warship-Buying Spree Prompts New Worry in Washington, Tokyo." *The Wall Street Journal Online*, 16 July 2007. http://online.wsj.com/article/SB11455055071767284.html?mod=googlenews_wsj (accessed 16 July 2007).
- Finkelstein, David M. and Kristen Gunness, ed. *Civil-military Relations in Today's China: Swimming in a New Sea*. Armonk, NY and London, England: M.E. Sharpe, Inc., 2007.
- Fisher, Richard (Jr.). "Developing U.S.-Chinese Nuclear Naval Competition in Asia." *International Assessment and Strategy Center*, 16 January 2005. www.strategycenter.net/research/pubID.60/pub_detail.asp (accessed 19 May 2007).
- Gertz, Bill. "China Sub Secretly Stalked U.S. Fleet." *The Washington Times*, 13 November 2006. <http://www.washingtontimes.com/national/20061113-121539-3317r.htm> (accessed 14 November 2006).
- . "China sub stalked U.S. fleet." *The Washington Times*, 3 December 2004. <http://www.washtimes.com/national/20041202-115302-2338r.htm> (accessed 1 December 2006).
- . "Chinese Military Boosts Hacking: U.S. Advantage in Space is Key." *The Washington Times*, 2 November 2007. <http://www.washingtontimes.com/apps/pbcs.dll/article?AID=/20071102/NATION/111020070/1001> (accessed 2 November 2007).
- Goertz, Gary and Paul F. Diehl. *Territorial Changes and International Conflict*. London, England: Routledge Press, 1992.
- Goldstein, Lyle S. and William Murray. "Undersea Dragons; China's Maturing Submarine Force," *International Security*, Vol. 28, No. 4 (Spring 2004). Boston, MA: Harvard College and Massachusetts Institute of Technology.
- Greenfield, Jeanette. *China and the Law of the Sea, Air and Environment*. Alphen aan den Rijn, Netherlands: Sijthoff and Noordhoff, 1979.
- . *China's Practice in the Law of the Sea*. Oxford, NY: Clarendon Press, 1992.
- Guoxing, Ji. "Rough Waters in the South China Sea: Navigation Issues and Confidence-Building Measures." *Asia Pacific Issues*, No. 53 (August 2001). <http://community.middlebury.edu/~scs/docs/api053.pdf> (accessed 2 November 2007).

- Hinton, Harold C. *The China Sea: The American Stake in its Future*. New York: Transaction Books, 1980.
- Holmes, James R. and Toshi Yoshihara. "China's Naval Ambitions in the Indian Ocean." *Maritime Implications of China's Energy Strategy, Interim Report*. Newport, RI: China Maritime Studies Institute, December 2006.
- Howarth, Peter. *China's Rising Sea Power: The PLA Navy's Submarine Challenge*. New York: Routledge Press, 2006.
- "Hu Jintao Calls for More Powerful Navy." *Taipei Times*, 29 December 2006.
<http://www.taipeitimes.com/News/front/archives/2006/12/29/2003342420> (accessed 1 December 2006).
- Huaqing, Liu. *Memoir of Liu Huaqing*. Peoples Liberation Army Navy, 2004.
- "Japan, China Agree to Ease Military Tensions." *Taipei Times*, 31 August 2007.
<http://www.taipeitimes.com/News/world/archives/2007/08/31/2003376594> (accessed 31 August 2007).
- Johnson, Chris. "Guo Delivers Speech at NDU: Chinese General Says China Defense Buildup Necessary for Stability." *Inside the Navy*, 31 July 2006. <http://www.itn.com> (accessed 31 July 2006).
- Kaplan, Robert D. "Lost at Sea." *New York Times*, 21 September 2007.
<http://www.nytimes.com/2007/09/21/opinion/21kaplan.html> (accessed 21 September 2007).
- Larson, Eric V., et. al. *Assuring Access in Key Strategic Regions: Toward a Long-Term Strategy*. Santa Monica, CA: Rand Corporation, 2004.
- Lim, Joo-Jock. *Geo-Strategy and the South China Sea Basin: Regional Balance, Maritime Issues, Future Patterns*. Singapore: Institute of Southeast Asian Studies, Singapore University Press, 1979.
- Li, Nan, ed. *Chinese Civil-Military Relations: The Transformation of the People's Liberation Army*. Abingdon, Oxon and New York, NY: Routledge Press, 2006.
- Lu, Tzu-chien. *China's Policy Towards Territorial Disputes: The Case of the South China Sea Islands*. UK: Routledge Press, 1989.
- Malin, Douglas A. *The American Factor in the Evolution of China's Maritime Doctrine*. Monterey, CA: Naval Postgraduate School, December 1993.
- Massenberg, Walter B., James M. Zortman and Thomas J. Kilcline, Jr. "Naval Aviation: Forward, Persistent and Dominant." *U.S. Naval Institute Proceedings*, Vol 131 Issue 10 (October 2005). <http://web.ebscohost.com> (accessed 3 October 2007).
- Miller, Mark S. *Maintaining Peace in the South China Sea and the Spratly Islands: Are There Acceptable Alternatives to the U.S. Naval Forces Forward Deployed in the Asia Pacific Region?* Carlisle, PA: U.S. Army War College, 2002.
- "Modeling Studies of the East China Sea and Changjiang Estuary."
http://codfish.smast.umassd.edu/research_projects/ECS/index2.html (accessed 11 May 2007).

- Montero, David. "China, Pakistan Team Up on Energy." *Christian Science Monitor*, 13 April 2007. <http://www.csmonitor.com/2007/0413/p06s01-wosc.html> (accessed 18 April 2007).
- National Security and the Convention of the Law of the Sea*, Second Edition, January 1996.
- Natter, Robert J. "Access is Not Assured." *U.S. Naval Institute Proceedings*, Vol. 129 Issue 1 (January 2003). <http://web.ebscohost.com> (accessed 3 October 2007).
- Nordquist, Myron H., John N. Moore and Kuen-chen Fu, ed. *Recent Developments in the Law of the Sea and China*. Leiden, The Netherlands: Martinus Nijhoff Publishers, 2006.
- Office of Naval Intelligence. *China's Navy 2007*. <http://www.militarytimes.com/static/projects/pages/20070313dnplanavy.pdf> (accessed 29 May 2007).
- O'Rourke, Ronald. "China Naval Modernization: Implications for U.S. Navy Capabilities — Background and Issues for Congress." Washington, DC: Congressional Research Service, The Library of Congress, November 18, 2005.
- . *The Impact of Chinese Naval Modernization on the Future of the United States Navy*. Novinka Books, 2006.
- "OSC Analysis: China-Expanding Polar Activities Boost Oceanic Satellite Development," 20 July 2007. www.opensource.gov, CPF20060620554001 (accessed 13 August 2007).
- Page, Lewis. "US Navy Builds Stingray-esque Base in Indian Ocean." *The Register*, 7 April 2007. <http://www.terrelibere.it/terrediconfine/index.php?x=completa&riga=03030> (accessed 14 April 2007).
- Pehrson, Christopher J. *String of Pearls: Meeting the Challenge of China's Rising Power across the Asian Littoral*. Carlisle, PA: U.S. Army War College Strategic Studies Institute, 2006.
- Pumphrey, Carolyn W., ed. *The Rise of China in Asia: Security Implications*. Carlisle, PA: U.S. Army War College Strategic Studies Institute, Triangle Institute for Security Studies, Duke University Center for International Studies, 2002.
- Samuels, Marwyn S. *Contest for the South China Sea*. New York, NY and London, England: Methuen Press, 1982.
- Seth, Sushil. "China Filling Up Military Power Gap Left by U.S." *Taipei Times*, 17 July 2007. www.taipeitimes.com (accessed 17 July 2007).
- "Shot Across Our Bow." *Investor's Business Daily*, 2 January 2007. <http://www.investors.com/editorial/editorialcontent.asp?secid=1501&status=article&id=252632924251938> (accessed 23 January 2007).
- Small, Page E. *China's Naval Modernization and Implications for the South China Sea*. Monterey, CA: Naval Postgraduate School, December 2002.
- Sohn, Louis B. and Kristen Gustafson. *The Law of the Sea: In a Nut Shell*. Saint Paul, MN: West Group, 1984.

- Sokolski, Henry D., ed. *Getting MAD: Nuclear Mutual Assured Destruction, Its Origins and Practice*. Carlisle, PA: U.S. Army War College Strategic Studies Institute, November 2004.
- Studeman, Michael W. *Dragon in the Shadows: Calculating China's Advances in the South China Sea*. Monterey, CA: Naval Postgraduate School, March 1996.
- Tung, Shi-Chung. *The Policy of China in the Third United Nations Conference on the Law of the Sea: Diploma Memoire*. Geneva: Graduate Institute of International Studies, January 1981.
- United Nations Convention on the Law of the Sea*, A/CONF.62/122 (7 October 1982).
- "U.S. Commander Says Chinese Sub Came Close to American Ships in Pacific." *Fox News International*, 14 November 2006.
<http://www.foxnews.com/story/0,2933,229237,00.html> (accessed 15 November 2006).
- U.S. Department of Defense. *Report to Congress Pursuant to the FY 2000 National Defense Authorization Act. Annual Report to Congress. Military Power of the People's Republic of China 2006*. Washington, DC: Department of Defense, 2006.
- U.S. Department of Defense. *Report to Congress Pursuant to the FY 2000 National Defense Authorization Act. Annual Report to Congress: Military Power of the People's Republic of China 2007*. Washington, DC: Department of Defense, 2007.
- Valencia, Mark J. "China and the South China Sea Disputes." *Adelphia Paper* 298. New York, NY: Oxford University Press, 1995.
- "Yellow Sea." National Oceanic and Atmospheric Administration.
<http://www.pmel.noaa.gov/np/pages/seas/yellowsea.html> (accessed 11 May 2007).
- 2006 Report to Congress of the U.S.-China Economic and Security Review Commission, 109th Congress, 2nd Session. Washington, DC: U.S. Government Printing Office, November 2006.